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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/721,227	11/26/2003	Mark Edward Kane	3805-025-27 CIP	5696

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EXAMINER
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NGUYEN, CUONG H

ART UNIT	PAPER NUMBER
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3661

DATE MAILED: 12/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/721,227

Applicant(s)

KANE ET AL.

Examiner

CUONG H. NGUYEN

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 November 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-65 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-65 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**Status of the claims**

1. This Office Action is the answer to the communication filed on 11/26/2003. Claims 1-65 are pending.

***Drawing***

2. This application has been filed with of formal drawings, and they are accepted for examinations.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-2, 17-18, 34-35, 50-51 are rejected under 35

U.S.C. 102(b) as being anticipated by Bingeman et al. (US Pat. 6,446,005).

Bingeman et al. teach about correcting errors in locomotive movement information caused by wear of a wheel of a train (see Bingeman et al., Figs. 2, 8), comprising:

- a control unit; a memory connected to the control unit;
- a positioning system in communication with the control unit, the positioning system being configured to provide the control unit with position information pertaining to the train (global positioning system - GPS) (see Bingeman et al., Fig. 6); and

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a wheel sensor connected to the control unit, the wheel (see Bingeman et al., claim 4), sensor being configured to measure rotation of a train wheel and provide train movement information based on a nominal wheel size (Bingeman's system uses a magnetic wheel sensor, see Bingeman et al., Fig. 8);

wherein the control unit (see Bingeman et al., Fig.8):

- determining a positioning system distance traveled by the train over an interval by calculating a difference in positions reported by the positioning system at the start of the interval and the end of the interval (see Bingeman, Fig. 6); determining a wheel sensor distance traveled by the train over the interval based on the train movement information from the wheel sensor calculating a correction factor based on the positioning system distance and the wheel sensor distance (see Bingeman et al., 17:1-5); and

using the correction factor to correct distance indicated by the wheel sensor (see Bingeman, Fig.10).

Therefore, Bingeman et al. teach a vehicle sufficiently comprising all claimed limitations.

**4. Claims 3, 19, 36, and 52 are rejected under 35**

**U.S.C. 102(e) as being anticipated by Bingeman et al., US Pat. 6,446,005).**

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Bingeman et al., also disclose that a speed is corrected (see Bingeman et al., 16:38-56, and 17:14-19).

5. Claims 4, 20, 37, and 53 are rejected under 35

U.S.C. 102(e) as being anticipated by Bingeman et al., US Pat. 6,446,005).

Bingeman et al., inherently teach that a traveled distance is determined using a start position and a stop position from a positioning system such as a GPS (see Bingeman, Fig.6 ref. 102).

6. Claims 5, 11, 16, 21, 27, 32, 38, 44, 49, and 54, 60, 65 are rejected under 35 U.S.C. 102(e) as being anticipated by Bingeman et al., US Pat. 6,446,005).

A. Re. To claims 5, 11, 21, 27, 38, 44, and 54, 60: The examiner

Bingeman et al., inherently teach that rotation information includes a number of rotations of the wheel over the interval such as periodically calibration (i.e., a wheel sensor may measure a rotation of a wheel directly; see Bingeman et al., the abstract, and 14:10-18).

B. Re. To claims 16, 32, 49, and 65: The examiner respectfully submits that Bingeman et al. teach about determining a distance from a GPS, and from a wheel sensor repeatedly, and then obtaining an average correction factor.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office Action:

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*(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.*

7. Dependent claims 6, 22, 39, and 55 are rejected under 35

U.S.C. 103(a) as being unpatentable over Bingeman et al., (US Pat. 6,446,005).

Bingeman et al. do not expressly ignore wheel rotation distance and positioning system distance when a speed of the train is below a speed threshold.

However, in their calculation from the control unit, a reference is used to determine speeds (see Bingeman 10:29-34).

It would have been obvious to one of ordinary skill in the art to use Bingeman et al.'s patent with a detail of "ignore wheel rotation distance and positioning system distance when a speed of the train is below a speed threshold." because obtaining distance data in this range would make the calculation for a correction coefficient not "in normal operation status".

8. Dependent claims 7-8, 23-24, 40-41, and 56-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bingeman et al., (US Pat. 6,446,005), in view of Satoh et al. (US Pat. 6,381,536).

The rationales and reference for a rejection of claim 34 are incorporated.

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Bingeman et al. do not disclose that a map database connected to the control unit, wherein the control unit using position information from GPS, ignoring wheel sensor distance and positioning system distance for sections of track for which the curvature is above a curvature threshold.

However, Satoh et al. obviously use map index and curvature/grade threshold to estimate a map distance (see Satoh et al. 1:45-65).

It would have been obvious to one of ordinary skill in the art to combine Bingeman et al.'s and Satoh et al. to use curvature/grade threshold as a reference for determine traveled distances because obtained distance data in this range would make the calculation for a correction coefficient not "in normal operation status".

9. Dependent claims 9, 25, 42, and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bingeman et al., (US Pat. 6,446,005).

The rationales and reference for a rejection of claim 34 are incorporated.

Bingeman et al. do not correct wheel sensor distance corresponding to portions of track having a curvature over a curvature threshold.

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It would have been obvious that for normal conditions, a curvature normally does not taking into account for a "distance" correction factor; it is logic that a "big" curvature (above a normal threshold) is meaningfully be taken into account for distance corrections.

10. Dependent claims 10-15, 26-31, 43-48, and 59-64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bingeman et al., (US Pat. 6,446,005).

A. Re. To claims 10, 26, 43, and 59:

Bingeman et al. also teach about taking distances and accelerations of the vehicle into account (see Bingeman et al., 6:15-27, and 17:5-9).

Bingeman et al. do not disclose about ignoring any wheel sensor distances and positioning system distances corresponding to an acceleration above a predetermined threshold.

However, it would have been obvious that for an abnormal distance or an abnormal acceleration (above predetermined thresholds), they are not meaningfully be taken into account for distance corrections.

B. Re. To claims 12-15, 28-31, 45-48, and 61-64: The examiner respectfully submits that a wheel sensor can be used to measure rotation of an axle, a drive shaft, a gear, or a motor because it is used for similar functions in the same environment.



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11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CUONG H. NGUYEN whose telephone number is 703-305-4553. The examiner can normally be reached on 7am - 3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas G. Black can be reached on 703-305-8233. The fax phone number for the organization where this application is assigned is 703-305-7687.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*Cuong H. Nguyen*

*CHAN*  
CUONG H. NGUYEN  
Primary Examiner  
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